WHAT IS CLAIMED:

1. A capacitive sensor for an ignition testing apparatus, comprising:

a substrate bearing a sensor metallization and a ground metallization;

a mounting device integrated with the substrate and configured to permit the substrate to be releasably mounted to an ignition coil housing;

a sensor displacement assembly integrated with at least one of the substrate and the mounting device comprising at least one member configured to move at least a portion of the sensor metallization in at least one of a first direction toward an ignition coil housing, a second direction away from an ignition coil housing, and a third direction lateral to an ignition coil housing, while the substrate is mounted on an ignition coil housing using the mounting device, and

a signal outputting element.

2. A capacitive sensor for an ignition testing apparatus in accord with claim 1,

wherein the sensor metallization is formed adjacent a first side of the substrate, and the ground metallization is formed adjacent a second side of the substrate.

3. A capacitive sensor for an ignition testing apparatus in accord with claim 2,

wherein the sensor displacement assembly comprises a movable first member disposed at an angle to the substrate having and having at least a first end portion adapted to assume and maintain any of a plurality of positions projecting beyond the second side of the substrate.

4. A capacitive sensor for an ignition testing apparatus in accord with claim 3,

wherein the substrate defines at least one of a threaded-opening and a non-threaded opening through the substrate configured to receive and pass at least the first end portion of the movable first member through the substrate so as to enable the first end portion to project from the second side of the substrate, and

wherein an exterior geometry of the first end portion of the movable first member corresponds to a respective one of the threaded-opening and a non-threaded opening in the substrate.

5. A capacitive sensor for an ignition testing apparatus in accord with claim 4, wherein the movable first member is substantially perpendicular to the substrate.

6. A capacitive sensor for an ignition testing apparatus in accord with claim 5,

wherein the substrate comprises at least two spaced apart slots separated from the sensor metallization,

wherein the sensor displacement assembly comprises a corresponding number of at least two spaced apart first members having a cross-section corresponding in shape and size to that of a respective one of the slots,

wherein the first members are disposed substantially perpendicular to the substrate, and

wherein the first members are joined by a second member disposed substantially parallel to the substrate.

7. A capacitive sensor for an ignition testing apparatus in accord with claim 6, further comprising:

a mounting block disposed on the first side of the substrate,

a first shaft having a proximal end mounted in the mounting block and having a distal threaded end, the threaded end extending through a corresponding threaded hole in the second member, and

a threaded member disposed on the first shaft distal threaded end on a side of the second member opposite to the substrate,

wherein movement of the threaded member along the first shaft distal threaded end in a direction toward the substrate biases the second member toward the substrate, which causes a corresponding movement of the first members.

8. A capacitive sensor for an ignition testing apparatus in accord with claim 5,

wherein the mounting device comprises at least one of a first device configured for generating a lateral force against an ignition coil housing to maintain the substrate in a desired position relative thereto and a second device configured for generating a tensile force in the substrate biasing the substrate toward an ignition coil housing.

9. A capacitive sensor for an ignition testing apparatus in accord with claim 5,

wherein the mounting device comprises a clamping device having paired opposing members, of which each of the paired opposing members is at least one of substantially planar, substantially planar with an inwardly bent section, and substantially planar along two axes (e.g., x-axis, y-axis) and concavely curved about at least a portion of a third axis (e.g., z-axis) substantially perpendicular to the two axes.

10. A capacitive sensor for an ignition testing apparatus in accord with claim 9, wherein the paired opposing members are formed from at least one of a steel, plastic, and polymer.

11. A capacitive sensor for an ignition testing apparatus in accord with claim 9, wherein at least one of the paired opposing members is translatable along at least one axis of the substrate.

12. A capacitive sensor for an ignition testing apparatus in accord with claim 11, wherein at least one of the paired opposing members is rotatable.

13. A capacitive sensor for an ignition testing apparatus in accord with claim 1, wherein said signal outputting element is at least one of a cable and wire.

14. A method for diagnostic testing of an ignition coil, comprising the steps of:

mounting in an initial position on an ignition coil housing a capacitive adapter

comprising a substrate bearing a sensor metallization and a ground metallization, a mounting device integrated with the substrate and configured to permit the substrate to be releasably mounted to an ignition coil housing, an output lead, and a sensor displacement assembly integrated with at least one of the substrate and the mounting device comprising at least one member configured to move at least a portion of the sensor metallization in at least one of a first direction toward an ignition coil housing, a second direction away from an ignition coil housing, and a third direction lateral to an ignition coil housing, while the substrate is mounted on an ignition coil housing using the mounting device;

connecting the output lead of the capacitive adapter to an engine analyzer;

measuring a firing line signal output by the ignition coil using the capacitive adapter; and

adjusting a position of the capacitive adapter sensor metallization relative to the ignition coil housing in at least one of the first direction, second direction, and third direction to obtain a first measured peak firing line signal within a range of about 5 kV to about 20 kV.

15. A method for diagnostic testing of an ignition coil according to claim 14, further comprising the step of:

attaching a boost plug to the output lead if adjustment of a position of the capacitive adapter sensor metallization relative to the ignition coil housing does not yield a first measured peak firing line signal greater than about 5 kV; and

adjusting a position of the capacitive adapter sensor metallization relative to the ignition coil housing in at least one of the first direction, second direction, and third direction to obtain a first measured peak firing line signal within a range of about 5 kV to about 20 kV.

16. A method for diagnostic testing of an ignition coil according to claim 14, wherein the adjusting step comprises adjusting a position of the capacitive adapter sensor metallization relative to the ignition coil housing in at least one of the first direction, second direction, and third direction to obtain a first measured peak firing line signal within a range of about 9 kV to about 11 kV.

17. A method for diagnostic testing of an ignition coil according to claim 15, wherein the adjusting step comprises adjusting a position of the capacitive adapter sensor metallization relative to the ignition coil housing in at least one of the first direction, second direction, and third direction to obtain a first measured peak firing line signal within a range of about 9 kV to about 11 kV.

18. A method for diagnostic testing of an ignition coil according to claim 16, further comprising the steps of:

moving the capacitive adapter to a similar position on each of a plurality of ignition coil housings;

comparing a firing line magnitude of each of the tested ignition coils to determine whether a difference between any two cylinders exceeds about 10% of the first measured peak firing line signal.

19. A method for diagnostic testing of an ignition coil according to claim 17, further comprising the steps of:

moving the capacitive adapter to a similar position on each of a plurality of ignition coil housings;

comparing a firing line magnitude of each of the tested ignition coils to determine whether a difference between any two cylinders exceeds about 10% of the first measured peak firing line signal.

20. A method for diagnostic testing of an ignition coil according to claim 18, wherein the comparing step comprises comparing a firing line magnitude of each of the tested ignition coils to determine whether a difference between any two cylinders exceeds about 25% of the first measured peak firing line signal.

21. A method for diagnostic testing of an ignition coil according to claim 19, wherein the comparing step comprises comparing a firing line magnitude of each of the tested ignition coils to determine whether a difference between any two cylinders exceeds about 25% of the first measured peak firing line signal.